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# United States Patent [19]

# Angadjivand et al.

## [11] Patent Number:

# 6,119,691

## [45] Date of Patent:

\*Sep. 19, 2000

134 ELECTRET FILTER MEDIC	[54]	<b>ELECTRET</b>	FILTER	MEDIA
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Manufacturing Company, St. Paul,

Minn.

[\*] Notice:

This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C.

55/DIG. 35, DIG. 39

154(a)(2).

[21] Appl. No.: 08/865,362

[22] Filed: May 29, 1997

#### Related U.S. Application Data

[63]	Continuation of application No. 08/591,217, Jan. 17, 1996,
	abandoned, which is a continuation of application No.
	08/291,611, Aug. 17, 1994, Pat. No. 5,496,507, which is a
	continuation-in-part of application No. 08/107,517, Aug. 17,
	1993, abandoned.

[51]	Int. Cl. <sup>7</sup>	A62B 18/02; A62B 23/02;
		A62B 7/10
[52]	U.S. Cl	<b>128/206.19</b> ; 128/205.29;
		55/DIG. 35; 55/DIG. 39
[58]	Field of Search	128/205.29, 206.19;

## [56] References Cited

#### U.S. PATENT DOCUMENTS

Re. 30,782	10/1981	Van Turnhout
Re. 31,285	6/1983	Van Turnhout et al 55/155
4,146,663	3/1979	Ikeda et al 428/96
4,188,690	2/1980	Suzuki et al 28/103
4,215,682	8/1980	Kubik et al 128/205.29
4,363,682	12/1982	Thiebault 156/181
4,375,718	3/1983	Wadsworth et al 29/592 E
4,429,001	1/1984	Kolpin et al 428/283
		•

4,476,186	10/1984	Kato et al 428/290
4,548,628	10/1985	Miyake et al 55/487
4,588,537	5/1986	Klasse et al 264/22
4,592,815	6/1986	Nakao 204/165

#### (List continued on next page.)

#### FOREIGN PATENT DOCUMENTS

0 325 854 B1	4/1993	European Pat. Off B03C 3/28
0325854B1	4/1993	European Pat. Off
5140849	6/1993	Japan .
568338	9/1970	Russian Federation A62B 18/02
2 176 404A	12/1986	United Kingdom .

#### OTHER PUBLICATIONS

Brown, R.C., Air Filtration, pp. 122-128, Pergamon Press, Ltd. (1993).

Wente, V.A., et al., Manufacture of Superfine Organic Fibers, Report No. 4364 of the Naval Research laboratories, published May 25, 1954.

Wente, V.A., "Superfine Thermoplastic Fibers", *Industrial Engineering Chemistry*, vol. 48, pp. 1342-2346.

Davies, C.N., "The Separation of Airborne Dust and Particles", *Institute of Mechanical Engineers*, London, Proceedings 1B, 1952.

Kaminsky, S.L., et al., Means of Individual Protection of Respiratory Organs, Mashinostroyeniye, 1982, pp. 42–46, Moscow (English translation).

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Schwappach; Karl G. Hanson

## [57] ABSTRACT

An electret filter media, and mask, that is made of a nonwoven web of thermoplastic microfibers. The thermoplastic microfibers are of substantially the same composition, are nonconductive, and have an effective fiber diameter less than about 15 micrometers. The nonwoven web also has sufficient unpolarized trapped charge to exhibit an initial filtration quality factor of at least 0.31 when measured under the DOP Penetration and Pressure Drop Test.

### 18 Claims, 4 Drawing Sheets

